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09/475,991	12/30/1999	KENICHIRO SAKAI	991522	7159

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EXAMINER
CHANG, JON CARLTON

ART UNIT	PAPER NUMBER
2623	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/475,991	SAKAI ET AL.	
	Examiner	Art Unit	
	Jon Chang	2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *2,3,13,14,36 and 37* is/are allowed.

6)☒ Claim(s) *1,4-7,10-12,15-35 and 38-41* is/are rejected.

7)☒ Claim(s) *8 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 December 1999* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Drawings

1. Figure 34 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. Claims 15-32, 35 and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 recites, "...partitioning an arbitrary number of document images among a plurality of document images which are partitioned and read, or the respective document images into a plurality of regions." The meaning of this is unclear. The metes and bounds of the claim are indeterminable. Claims 16, 17, 29, 32, 35 and 38 suffer from the same problem.

Claims not mentioned specifically depend from indefinite antecedent claims.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 4-7, 10-12, 15, 16, 28, 32-34, 38-39 and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,675,672 to Nakabayashi.

As to claim 1, Nakabayashi discloses a document image processing device, comprising:

character region extracting unit extracting character regions respectively from a plurality of document images which are partitioned and read (Fig.1, elements 28 and 30; Fig.4);

character recognizing unit recognizing character images within the character regions extracted by said character region extracting unit (Fig.1, element 12; column 4, lines 23-31);

overlapping detecting unit detecting an overlapping of the plurality of document images based on character recognition results of the respective document images, which are obtained by said character recognizing unit (column 5, lines 34-39); and

image merging unit merging the plurality of document images at an overlapping position detected by said overlapping detecting unit (column 5, lines 46-47; column 6, lines 3-5).

As to claim 4, Nakabayashi discloses the document image processing device according to claim 1, wherein said character region extracting unit extracts a plurality of character regions in line images in the plurality of document images (note in Fig.4, block 82, for example, there are number of character regions in the line of characters "recognize 3023 character").

As to claim 5, Nakabayashi discloses the document image processing device according to claim 1, wherein said overlapping detecting unit detects as an overlapping position of line images whose matching degrees are high by making a comparison between character regions in line images in a direction from edges of the plurality of document images to their centers (note in Fig.4, block 82, for example, the line image "recognize 3023 character" goes from the left edge to center in the horizontal direction; note also column 5, lines 33-39, indicating comparison is between character images in a direction from top and bottom edges).

As to claim 6, Nakabayashi discloses the document image processing device according to claim 1, wherein: the plurality of document images which are partitioned and read are two document images; and said overlapping detecting unit detects an overlapping position of the two document images by making a comparison between character regions in line images in the two document images (Fig.1, element 32; Figs. 4 and 5; column 5, lines 36-37).

With regard to claim 7, Nakabayashi discloses the document image processing device according to claim 1, wherein said overlapping detecting unit regards as detection targets character regions in particular regions in the plurality of document

images (in Figs.4 and 5, note that the targets are the character regions in particular regions).

Referring to claim10, Nakabayashi discloses the document image processing device according to claim 1, wherein said overlapping detecting unit detects an overlapping position only in a particular direction (note in Fig.4, with the joining of two images vertically, the overlapping position is detected along the vertical direction, i.e., the from the top edge of one image, and from the bottom edge of the other image).

Regarding claim 11, Nakabayashi discloses the document image processing device according to claim 1, wherein said character region extracting unit extracts a region enclosed by a tetragon circumscribed to a character image as a character region (note in Fig.4, the "tetragon" i.e., the rectangle, surrounding the character region).

As to claim 12, Nakabayashi discloses a document image merging method, comprising:

recognizing character images (Fig.1, element 12; column 4, lines 23-31);

detecting an overlapping of the plurality of document images based on character recognition results of the respective document images which are partitioned and read (column 5, lines 34-39); and

merging the plurality of document images at a detected overlapping position (column 5, lines 46-47; column 6, lines 3-5).

As to claim 15, as best understood, Nakabayashi discloses a document image processing device, comprising:

region partitioning unit partitioning an arbitrary number of document images among a plurality of document images which are partitioned and read, or the respective document images into a plurality of regions (Fig.4; Fig.1, elements 28 and 30 obtain partitioned images of the document 32);

line image extracting unit extracting line images respectively from the plurality of regions partitioned by said region partitioning unit (Fig.4; note the lines of character which are extracted in elements 82 and 84);

overlapping detecting unit detecting an overlapping position of the plurality of document images based on positions of character regions whose matching degrees are high by making a comparison between character regions in the line images in the respective regions, which are extracted by said line image extracting unit (comparison is made between the regions based on the coded characters, column 5, lines 36-37, column 2, lines 42-43); and

image merging unit merging the plurality of document images at the overlapping position detected by said overlapping detecting unit (column 5, lines 46-47; column 6, lines 3-5).

With regard to claim 28, Nakabayashi discloses the document image processing device according to claim 15, wherein said overlapping detecting unit makes a comparison between the line images in the respective regions in a predetermined order (in Fig.4, since there are only two line images, there is only one comparison, which means the order is predetermined).

With regard to claim 16, the remarks provided above for claims 15 and 1 are applicable.

With regard to claims 32-34, remarks similar to those provided above for claims 15 and 16 are applicable.

With regard to claims 38-39 and 41, remarks similar to those provided above for claims 15, 16 and 1 are applicable. The computer-readable storage medium of claims 38 and 39 is inherent given that Nakabayashi's invention is a computer based system (column 1, line 17).

5. Claims 1, 4, 6-7, 11, 12, 15, 16, 32-34, 38-39 and 41 are rejected under 35 U.S.C. 102(a) as being anticipated by either one of the following two references: Japanese Published Patent Application 11-196255 to Matsuda, or Japanese Published Patent Application 11-66234 to Miyamoto et al. (hereinafter "Miyamoto").

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

As to claim 1, Matsuda and Miyamoto disclose a document image processing device, comprising:

character region extracting unit extracting character regions respectively from a plurality of document images which are partitioned and read (Matsuda, paragraph [0007]; Miyamoto, paragraph [0001]);

character recognizing unit recognizing character images within the character regions extracted by said character region extracting unit (Matsuda, paragraph [0007]; Miyamoto, paragraph [0007]);

overlapping detecting unit detecting an overlapping of the plurality of document images based on character recognition results of the respective document images, which are obtained by said character recognizing unit (Matsuda, paragraph [0007]; Miyamoto, paragraph [0010]); and

image merging unit merging the plurality of document images at an overlapping position detected by said overlapping detecting unit (Matsuda, paragraph [0007]; Miyamoto, paragraph [0007]).

As to claim 4, Matsuda and Miyamoto disclose the document image processing device according to claim 1, wherein said character region extracting unit extracts a plurality of character regions in line images in the plurality of document images (Matsuda, paragraph [0007]; Miyamoto, paragraph [0007]).

As to claim 6, Matsuda and Miyamoto disclose the document image processing device according to claim 1, wherein: the plurality of document images which are partitioned and read are two document images; and said overlapping detecting unit detects an overlapping position of the two document images by making a comparison between character regions in line images in the two document images (Matsuda, paragraph [0007]; Miyamoto, paragraph [0007]).

As to claim 7, Matsuda and Miyamoto disclose the document image processing device according to claim 1, wherein said overlapping detecting unit regards as

detection targets character regions in particular regions in the plurality of document images (Matsuda, paragraph [0007]; Miyamoto, paragraph [0007]).

Regarding claim 11, Matsuda and Miyamoto disclose the document image processing device according to claim 1, wherein said character region extracting unit extracts a region enclosed by a tetragon circumscribed to a character image as a character region (Matsuda, Fig.3; Miyamoto, paragraph [0007]).

As to claim 12, Matsuda and Miyamoto disclose a document image merging method, comprising:

recognizing character images (Matsuda, paragraph [0007]; Miyamoto, paragraph [0007]);

detecting an overlapping of the plurality of document images based on character recognition results of the respective document images which are partitioned and read (Matsuda, paragraph [0007]; Miyamoto, paragraph [0007]); and

merging the plurality of document images at a detected overlapping position (Matsuda, paragraph [0007]; Miyamoto, paragraph [0007]).

As to claim 15, as best understood, Matsuda and Miyamoto disclose a document image processing device, comprising:

region partitioning unit partitioning an arbitrary number of document images among a plurality of document images which are partitioned and read, or the respective document images into a plurality of regions (Matsuda, paragraph [0007]; Miyamoto, paragraph [0001]);

line image extracting unit extracting line images respectively from the plurality of regions partitioned by said region partitioning unit (Matsuda, Fig.3, note the lines of characters; Miyamoto, Fig.7, note the lines of characters);

overlapping detecting unit detecting an overlapping position of the plurality of document images based on positions of character regions whose matching degrees are high by making a comparison between character regions in the line images in the respective regions, which are extracted by said line image extracting unit (Matsuda, paragraph [0007]; Miyamoto, paragraph [0007]); and

image merging unit merging the plurality of document images at the overlapping position detected by said overlapping detecting unit (Matsuda, paragraph [0007]; Miyamoto, paragraph [0007]).

With regard to claim 16, the remarks provided above for claims 15 and 1 are applicable.

With regard to claims 32-34, remarks similar to those provided above for claims 15 and 16 are applicable.

With regard to claims 38-39 and 41, remarks similar to those provided above for claims 15, 16 and 1 are applicable. The computer-readable storage medium of claims 38 and 39 is inherent given Matsuda's paragraph [0001] and Miyamoto's paragraph [0035].

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 29-31, 35 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakabayashi.

As to claim 29, the remarks provided above for claim 15 are applicable. Claim 29 further recites a setting unit allowing a setting of whether or not to automatically merge the plurality of document images on a display screen. Essentially, this amounts to a control for displaying or not displaying the merged images. This is not seen as a patentable difference from Nakabayashi. To display or not display a result of processing is considered a decision based on designer or user preference. Further, the Examiner takes Official Notice that units for permitting or not permitting a display of a processing result is well known. It would have been obvious to one of ordinary skill in the art to employ such a unit to allow a user to view merged images, if he so desired (to check the result prior to printing for example), or not display the merged images (to save time for example).

With regard to claim 30, the particular manner in which the setting unit is implemented (i.e., on-screen button, switch, etc.) is considered to be determined by designer preference.

Claim 31 requires that said setting unit is one with which a user can set the number of merging sheets of document images. This is not considered a patentable distinction. In any scanning system, the user determines the desired number of scanned document images. This in turn, would determine the number of sheets to merge. To have a unit to allow a user to set this number is considered obvious.

With regard to claim 35, remarks provided above for claims 16 and 29 are applicable.

With regard to claim 40, remarks provided above for claims 16 and 29 are applicable. The computer-readable storage medium is inherent given that Nakabayashi's invention is a computer based system (column 1, line 17).

Allowable Subject Matter

8. Claims 2, 3, 13, 14, 36 and 37 are allowed.

9. Claim 17 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

10. Claims 8-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. Claims 18-27 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

References Cited

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent 4,272,756 to Kakumoto teaches dividing a picture into a plurality of partial pictures such that adjacent ones have overlapped regions, and character recognition is performed in the overlapped regions.

U.S. Patent 4,949,391 to Faulkerson discloses an adaptive image acquisition system which utilizes a correlation process to identify redundant frame information (i.e., overlap areas).

U.S. Patent Publication US 2002/0001418 A1 discloses a putting together partially overlapping images into one image, both vertically and horizontally.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon Chang whose telephone number is (703)305-8439. The examiner can normally be reached on M-F 8:00 a.m.-6:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (703)308-6604. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

Jon Chang
Primary Examiner
Art Unit 2623

Jon Chang
February 10, 2003